
County of Los Angeles • Department of Health Services
Acute Communicable Disease Control
Special Studies Report 1999

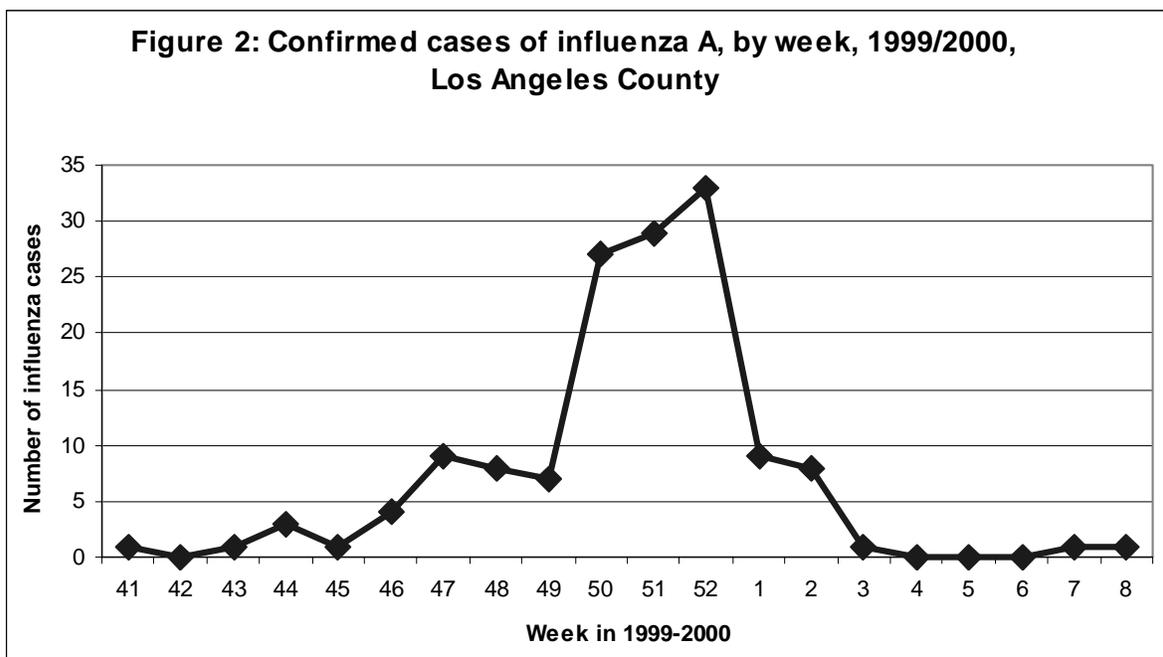
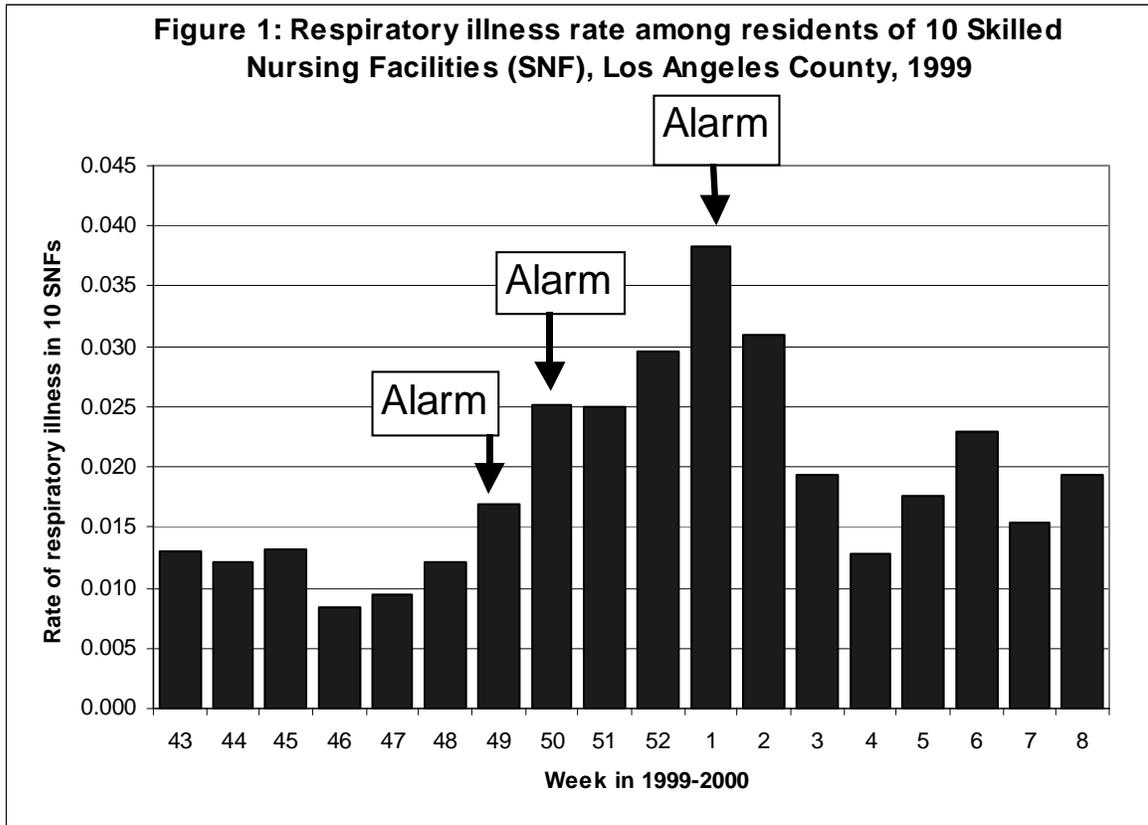
**SURVEILLANCE OF INFLUENZA THROUGH ACTIVITY OF RESPIRATORY ILLNESS
IN NURSING HOMES LOS ANGELES COUNTY, 1999**

In 1997 and 1999, Los Angeles County experienced influenza seasons that presented major challenges to the emergency medical system of the county. Above all, emergency rooms were not able to accept patients and requested to “divert” more than 50% of emergency cases brought in by ambulances. An investigation of the 1997 crisis showed a multifactorial origin of this problem, such as purely medical reasons (for example, the vaccine strain did not match the circulating strain resulting in a longer hospital stay of affected individuals, particularly the elderly), shortages of nursing staff, and the reduction of staffed beds in the county within the last 10 years in combination with a steady increase of the population. Furthermore, nursing staff often like to request time off in the last week of December. If public health officials knew in a timely fashion when the wave of influenza cases would start to flood the county, they could warn hospitals to judiciously allow nursing staff time for leave.

In 1997, Acute Communicable Disease Control (ACDC) learned that nursing home surveillance provided data that could be used retrospectively to predict the coming influenza season at least one week ahead of other traditional surveillance systems. In 1999, ACDC performed surveillance involving 10 nursing homes under a centralized administration. ACDC asked the nursing home director to provide the monthly breakdown of the following: (1) the count or population of each of the nursing homes and (2) the number of respiratory illnesses in the week of interest. We calculated the expected proportion of respiratory illness by averaging the proportion of respiratory illness in the last four weeks prior to the week of illness. The upper level of the expected range was calculated as the average plus two times the standard deviation of the four weeks. When the proportion of respiratory illness during the week of interest exceeded the upper level of the expected range, an “alarm” triggered. We compared this “nursing home surveillance system” with standard methods, such as the curve of passively reported influenza isolates in 1999/2000.

Figure 1 shows the evolution of respiratory illnesses of any etiology during the influenza season 1999/2000. Weeks 49 and 50 in 1999 as well as week 1 in 2000 indicate an “alarm.” In contrast, the number of the influenza isolates increases one week later, on week 50 (Figure 2). Therefore, nursing home surveillance for respiratory illness provides better sensitivity for predicting the rise of influenza, one week before the (retrospectively constructed) curve of influenza isolates (routine surveillance) is able to confirm the rise. However, a limitation of this analysis is that nursing home data was provided only at the end of each month, therefore in an untimely fashion.

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In summary, it appears worthwhile to explore the role of respiratory illness surveillance in nursing homes as a tool to predict the annual rise of influenza cases throughout the county.